

I claim:

1. An LDMOS transistor, comprising:

a semiconductor layer of a first conduction type;

a body zone of a second conduction type, opposite the first conduction type, formed in said semiconductor layer, said body zone having a lateral edge;

a highly doped source zone of the first conduction type formed in said body zone;

a highly doped drain terminal zone of the first conduction type formed in said semiconductor layer at a distance from said body zone;

a gate, said body zone being self-aligned with respect to said gate;

at least one additional body region disposed below said body zone in said semiconductor layer and projecting beyond said lateral edge of said body zone at least in a direction towards said drain terminal zone.

2. The LDMOS transistor according to claim 1, wherein said at least one additional body region is one of a plurality of additional body regions extending farther toward said drain

terminal zone with an increasing depth in said semiconductor layer.

3. The LDMOS transistor according to claim 1, wherein said additional body region is provided under a RESURF zone of the first conduction type.

4. The LDMOS transistor according to claim 1, wherein said semiconductor layer is disposed over a buried layer on a semiconductor substrate.

5. The LDMOS transistor according to claim 4, wherein said buried layer has the first conduction type.

6. The LDMOS transistor according to claim 4, wherein said buried layer has the second conduction type.

7. The LDMOS transistor according to claim 1, which comprises a thick insulating layer, and wherein said gate extends over a thick insulating layer.

8. The LDMOS transistor according to claim 1, wherein the first conduction type is an n conduction type.

9. The LDMOS transistor according to claim 1, which comprises a buffer zone of the first conduction type, and wherein said drain terminal zone is embedded in said buffer zone.

10. The LDMOS transistor according to claim 1, which further comprises a buried layer, and wherein said additional body regions are disposed at a distance from said buried layer.

11. In a method for fabricating the LDMOS transistor according to claim 1, which comprises: carrying out at least one implantation to form the at least one additional body region prior to depositing a polycrystalline silicon layer for forming a gate of the LDMOS transistor according to claim 1.

12. The method according to claim 11 for fabricating a transistor with the additional body region provided under a RESURF zone of the first conduction type, which comprises counterdoping a doping of the RESURF zone in the source region, for forming the body zone.

13. In a method for fabricating the LDMOS transistor according to claim 7, which comprises: carrying out at least one implantation to form the at least one additional body region prior to forming the thick insulating layer on a surface of the semiconductor layer of the LDMOS transistor according to claim 7.

14. The method according to claim 13 for fabricating a transistor with the additional body region provided under a RESURF zone of the first conduction type, which comprises counterdoping a doping of the RESURF zone in the source region, for forming the body zone.